

Amendments to the Drawings:

The attached replacement drawing sheets make changes to Fig. 3 (now Figs. 3A-3C) and replace the original sheets with Figs. 1-3.

Attachment: Replacement Sheets (two)

REMARKS**Status of the Claims**

Claims 1-25 and 27-31 are pending in this application, the independent claims being claims 1, 5, 22, 23, 24 and 28. By this Amendment, claim 26 is canceled, and the specification, drawings (Fig. 3), and claims 1-8, 10-13, 20, 22-25, 27, 28 and 30 are amended.

Summary of the Official Action

In the Official Action, claims 1, 3, 9, 20, 28 and 29 were objected to on formal grounds, and claims 14, 15, 22, 23, 25 and 30 were rejected under 35 U.S.C. 112, second paragraph, as indefinite. Claims 24-28 were rejected under 35 U.S.C. 102(b), as anticipated by U.S. Patent No. 6,398,353 (Tsuchii), claims 1-9, 12-23, 29 and 30 were rejected under 35 U.S.C. 103(a), as unpatentable over the Tsuchii '353 patent in view of U.S. Patent No. 6,773,097 (Dowell), and claims 10, 11 and 31 were rejected under 35 U.S.C. 103(a), as unpatentable over the Tsuchii '353 patent and the Dowell '097 patent, further in view of U.S. Patent No. 6,698,871 (Hayashi).

Reconsideration and withdrawal of the objections and rejections respectfully are requested in view of the above amendments and the following remarks.

Formal Amendments

The drawings have been amended to conform with the written disclosure, including the claims as originally filed, to include Figs. 3A - 3C. In particular, Fig. 3 has been re-presented as amended Figs. 3A-3C, to correspond to the written disclosure of a modular kit and manufacturing process, e.g., as described at paragraphs [0048]-[0049] and recited in original claims 22 and 23. No new matter has been added.

The specification has been amended to correct a number of formal errors, and to correspond more clearly to the newly numbered Figs 3A-3C described above. No new matter has been added.

Claims 2-4, 6-8 and 10-13 have been amended to recite in the preamble "a fluid container", as recited in parent independent claim 1. No new matter has been added.

Claims 22 and 23 have been amended to clarify the language relating to the claimed features of "a first type of fluid container lid" and "a second type of fluid container lid." These features are described in the original disclosure, e.g., at paragraphs [0048]-[0049], and are illustrated more clearly in the amended drawings (Figs. 3A-3C). No new matter has been added.

The formal rejection of claims 14, 15, 22, 23 and 25 respectfully is traversed. Applicants submit that the ranges/values recited in these dependent claims are contained within the ranges of their respective independent claims, and are in proper form. Nevertheless, the language of certain claims has been amended to clarify a range of ratios, with particular attention to the Examiner's comments. No new matter has been added.

Applicants submit that the present amendments obviate the formal objections and rejections of the specification, the claims and the drawings. Favorable consideration of the formal amendments and reconsideration and withdrawal of the formal objections and rejections respectfully are requested.

Claim Amendments

The rejections of the claims over the cited art respectfully are traversed. Nevertheless, without conceding the propriety of the rejections, claim 26 has been canceled, claim 5 has been re-written in independent form, and claims 1, 24 and 28 have been amended more clearly to recite various novel features of the claimed invention, with particular attention to the Examiner's comments. Support for the amendments may be found in the application as originally filed. No new matter has been added.

Claimed Invention

The present invention relates to a novel fluid container, a method of manufacturing a fluid container, an assembly kit for a fluid container, and a method of passive pressure control of a print head cartridge.

In one aspect, as recited in claim 1, the claimed invention relates to a fluid container, comprising a fluid container body having at least one free fluid reservoir located in the fluid container in side-by-side relationship with a negative pressure medium containing chamber and fluidly connected to the negative pressure medium containing chamber. The fluid container further comprises a common fluid delivery port directly connecting the at least one free fluid reservoir and the negative pressure medium containing chamber with a fluid ejector to deliver fluid to the fluid ejector directly from at least the free fluid reservoir, where the at least one free fluid reservoir and the negative pressure medium containing chamber are located, at least in part, over the fluid delivery port. A ratio of the volume of the free fluid reservoir to the volume of the negative pressure medium containing chamber is between about 0.3 to 1 and 3.0 to 1.

In another aspect, as recited in independent claim 5, the claimed invention relates to a fluid container comprising a fluid container body having at least one free fluid reservoir located in the fluid container in side-by-side relationship with a negative pressure medium containing chamber and fluidly connected to the negative pressure medium containing chamber. The fluid container further comprises a fluid port directly connected to at least one free fluid reservoir with a fluid ejector to deliver fluid to the fluid ejector directly from the free fluid reservoir, the at least one free fluid reservoir and the negative pressure medium containing chamber being located, at least in part, over the fluid delivery port, and a filter located between the fluid delivery port and both the free fluid reservoir and the negative

pressure medium chamber, wherein the negative pressure medium is separated from and located over the filter.

In another aspect, as recited in independent claim 22, the claimed invention relates to a method of manufacturing different fluid containers on a single assembly line, comprising manufacturing a first type of fluid container lid having a first negative pressure material chamber configuration, manufacturing a second type of fluid container lid having a second negative pressure material chamber configuration that differs from the first configuration, manufacturing a fluid container body that selectively receives either one of the first type of fluid container lid or the second type of fluid container lid, selecting one of the first type of fluid container lid and the second type of fluid container lid, and applying the selected one of the first type of fluid container lid and the second type of fluid container lid to the fluid container body on the single assembly line.

In another aspect, as recited in independent claim 23, the claimed invention relates to an assembly kit for a fluid container usable in a marking device, the kit having component parts capable of being assembled together, the kit comprising the combination of a first type of fluid container lid having a first negative pressure material chamber configuration, a second type of fluid container lid having a second negative pressure material chamber configuration that differs from the first negative pressure material chamber configuration, and a fluid container body that selectively receives either one of the first type of fluid container lid and the second type of fluid container lid to form a fluid container usable in the marking device.

In another aspect, as recited in independent claim 28, the claimed invention relates to a method of passive pressure control of a print head cartridge comprising a free fluid reservoir and a negative pressure material chamber fluidly interconnected with the free fluid reservoir. The method comprises locating a fluid delivery port directly beneath more than half of both

the free fluid reservoir and the negative pressure material chamber, and delivering fluid from the cartridge only through a portion of the ink delivery port that is beneath the free fluid reservoir.

Prior Art Distinguished

The Tsuchii '353 patent relates to an ink tank and liquid discharge recording apparatus provided with such ink tank, and discloses an ink tank/liquid discharge apparatus including a fluid container body including a free fluid reservoir located in the fluid container side-by-side with a negative pressure medium containing chamber and fluidly connected to the negative pressure medium containing chamber, a fluid ejector and a filter located between the fluid container body and the fluid ejector. However, Applicants submit that the Tsuchii '353 patent fails to disclose or suggest at least the above-discussed features of the claimed invention.

Initially, as acknowledged by the Examiner in the Official Action, the Tsuchii '353 patent fails to disclose or suggest the claimed feature of a ratio of volume of a free fluid reservoir and a negative pressure containing chamber, as disclosed in the present application and recited in claim 1.

The Tsuchii '353 patent also fails to disclose or suggest at least the features of a free fluid reservoir, a negative pressure medium containing chamber, a fluid port directly connected to a fluid ejector to deliver fluid to the fluid ejector directly from the free fluid reservoir, the free fluid reservoir and the negative pressure medium containing chamber being located, at least in part, over the fluid delivery port, and a filter located between the fluid delivery port and both the free fluid reservoir and the negative pressure medium chamber, *wherein the negative pressure medium is separated from and located over the filter* (claim 5). Rather, in each of the embodiments of Figs. 1-8 and 9A-9C, the Tsuchii '353 patent teaches a structure in which the filter 9 is in direct contact with the negative pressure medium 6; in the

embodiment of Figs. 9A-9C, element 35 disposed between filter 9 and negative pressure material 6 contacts and compresses a portion of the negative pressure material 6 (e.g., a peripheral portion) to provide a slightly relaxed condition of the negative pressure material 6 that contacts the filter 9 through the opening portion 37 in the of the element 35 in the vicinity of the filter 9, to increase the localized negative pressure of the negative pressure material 6 at the filter 9. However, the negative pressure material 6 is in contact with the filter 9. (See column 12, lines 17-23).

The Tsuchii '353 patent similarly fails to disclose or suggest at least the feature of a method of passive pressure control of a print head cartridge comprising a free fluid reservoir and a negative pressure material chamber, including delivering fluid from the cartridge *only* through a portion of the ink delivery port that is beneath the free fluid reservoir, as disclosed in the present application and recited in claim 28. Rather, the Tsuchii '353 patent teaches to deliver fluid from both the free fluid reservoir and the negative pressure material chamber. In this regard, although flow of fluid is more freely accomplished from the free fluid reservoir when ample supply is present therein, fluid is still delivered from the negative pressure material chamber. (See Figs. 3A-3C).

The Tsuchii '353 patent further fails to disclose or suggest at least the features of a manufacturing method or assembly kit including a first type of container lid having a first negative pressure material chamber configuration and a second type of container lid having a second negative pressure material chamber configuration (different from the first type of container lid configuration), that are selectively connected to a single fluid container body, e.g., in an assembly method (claim 22) or an assembly kit (claim 23), as disclosed in the present application and recited in the claims.

The remaining cited art fails to remedy these deficiencies of the Tsuchii '353 patent.

The Dowell '097 patent relates to ink delivery techniques using multiple ink supplies, and discloses an ink cartridge comprising a liquid container including a plurality of ink chambers, a negative pressure medium chamber, and an open chamber having a vent, and was cited for its alleged suggestion in Figs. 1B, 4 and 10-11 of an ink cartridge comprising a bubbling chamber (209), and wherein a volume of a negative pressure chamber is smaller than the volume of a free fluid chamber at a predetermined ratio for improving performance capability of the cartridge and increasing volumetric efficiency of the ink supply (citing column 8, lines 51-57). However, Applicants submit that the Dowell '097 patent fails to disclose or suggest at least the above-described features of the claimed invention.

Initially, as acknowledged by the Examiner in the Official Action, the Dowell '097 patent does not specify the volume ratios as claimed.

Moreover, referring to Figs. 1B and 4, the Dowell '097 patent is directed to a fluid container in which a primary flow of ink is from the ink chambers (102,104,106,214) through the negative pressure material chamber (58,210), through the filter (64,232) to the print head (54,220). Although the Dowell '097 patent discloses a check valve structure to provide high flow of ink directly from the free fluid reservoir (ink chambers) during periods of high use, such fluid flow is NOT through a common filter, as disclosed in the present application and recited in present claims. Accordingly, nowhere is the Dowell '097 patent understood to recognize, let alone address or suggest, the drawbacks of a fluid delivery system including a free fluid reservoir, a negative pressure material chamber, and common filter providing direct flow from the free fluid reservoir recognized and addressed in the present application. Nor is the Dowell '097 patent understood to provide any motivation for modifying the structure of the Tsuchii '353 patent to achieve the claimed invention.

Further, the Dowell '097 patent fails to disclose or suggest a bubbling chamber, as disclosed in the present application and recited in the pending claims. Rather, the Dowell

'097 patent merely variously describes an open chamber (96,263,209), including a labyrinth vent (70,242,282), and a coupling orifice (74,211,270) that permits external air to enter directly into a free fluid reservoir to compensate for volume/pressure changes in the free fluid reservoir due to environmental changes, e.g., temperature and pressure changes. The Dowell '097 patent does not teach that these chambers contain fluid, let alone provide a bubbling chamber, as disclosed in the present application and recited in the claims.

Nowhere is the Dowell '097 patent understood to disclose or suggest the above-discussed features of the claimed invention. Nor is the Dowell '097 patent understood to add anything to the Tsuchii '353 patent that would make obvious the claimed invention.

The Hayashi '871 patent relates to an ink-contacting member, and ink-absorbing member, an ink tank and ink-jet cartridge, and an ink-jet recording apparatus using the same, and was cited for its disclosure of a negative pressure material made of a non-woven material such as felt. Without conceding the propriety of the Examiner's characterization of the Hayashi '871 patent or the combined teachings thereof, Applicants submit that the Hayashi '871 patent fails to disclose or suggest at least the above-discussed features of the claimed invention. Nor is the Hayashi '871 patent understood to add anything to the Tsuchii '353 patent and/or the Dowell '097 patent that would remedy the deficiencies thereof or make obvious the claimed invention.

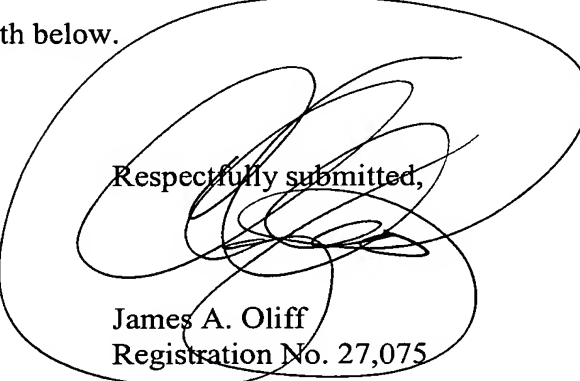
For the above reasons, Applicants submit that claims 1, 5, 22, 23, 24 and 28 are allowable over the cited art.

Claims 2-4, 6-21, 27 and 29-31 depend from claims 1, 24 and 28, and are believed allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination with the features of its respective base claim and is believed allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

Conclusion

Applicants submit that the present Amendment is responsive to each of the points raised by the Examiner in the Official Action, and submit that the application is in condition for allowance. Favorable consideration of the claims and passage to issue of the application at the Examiner's earliest convenience earnestly are solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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JAO:CPW

Attachments:

Two Replacement Sheets of Drawings (Figs. 1, 2, 3A-3C)

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